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Professor Robert J. Aley, Professor of Mathematics in the Indiana University, is teaching mathematics in a three weeks Institute held at Council Bluffs, Iowa. Professor Aley will teach mathematics in the Leland Sanford Jr. University the coming year, he having exchanged places with Professor John A. Miller.

We take this opportunity to thank our friends for the numerous Invitations, Programs, and Catalogues which we have received. We are glad to receive Catalogues from the various Schools and Colleges as we ourselves are interested in school work.

The July number of *The Monist*, a Chicago quarterly magazine, contains as its leading article, an essay by Dr. George Bruce Halsted which is attracting great attention. It is entitled "The Non-Euclidean Geometry Inevitable," and its new results are of high importance both in the history and philosophy of that facinating subject, with which Dr. Halsted's name has become identified.

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BOOKS AND PERIODICALS.

The Principles of Elliptic and Hyperbolic Analysis. By Alexander Macfarlane, M. A., D. Sc., LL. D., Fellow of the Royal Society of Edinburgh, Professor of Physics in the University of Texas, Austin, Texas. Pamphlet form, 47 pp. Price, $0.50. New York: B. Westleman & Co.

In this paper, the author considers the versor part of space more fully and extends the investigation to elliptic and hyperbolic versors. The fundamental theorem of trigonometry is investigated for the sphere, the ellipsoid of revolution and the general ellipsoid; then for the equilateral hyperboloid of two sheets, the equilateral of one sheet and the general hyperboloid. The principles thus deduced are applied to find the complete form of other theorems in spherical trigonometry and to deduce the generalized theor ms for the ellipsoid and hyperboloid. At the end, the analogues of rotation theorem are deduced. B. F. F.

Mathematical Teaching and its Modern Methods. By Thurman Henry Saxfford, Ph. D., Field Memorial Professor of Astronomy in Williams College. 8 vo., paper back, 47 pp. Price $0.25. Boston: D. C. Heath & Co.

This valuable little monograph is full of mature thought on the subject of Mathematical Teaching and its Methods. It gives a very careful exposition of the principles that underlie the teaching of arithmetic, algebra, geometry; plane, algebraic, analytical and spherical trigonometry; and the differential and integral calculus, and higher analysis. B. F. F.

The First Steps in Algebra. By G. A. Wentworth, A. M., author of a Series of Text-books in Mathematics. 8 vo., half leather, 184 pp. Price, $0.70. Boston and Chicago: Ginn & Co.

This excellent little work is designed for pupils in the upper grades of grammar schools. The author has kept constantly in view the capacity and taste of the pupils of these grades and has given them an elementary algebra that will please and instruct them.

The introduction of this work in the grammar schools of this country will go far towards dispelling the distaste and fear, which so many pupils have for algebra. The author, in endeavoring to smooth the path of the learner, has not sacrificed pedagogical or psychical principles, the explanation san dmodel solutions being given in a way to preserve the educational value of the study. We heartily recommend it to all teachers of grammar grades as a book well suited to their needs B. F. F.

Elementary Algebra for the use of Preparatory Schools. By Charles Smith, M. A., Author of Treatise on Algebra, etc. Revised and Adapted to American Schools by Irving Stringham, Ph. D., Professor of Mathematics and Dean of the College Faculties, in the University of California. Crown 8 vo., 408 pp. Price, $1.10. New York: Macmillan & Co.

The transition from the traditional algebra of many of our secondary schools to the reconstructed algebra of the best American Colleges is more abrupt than is necessary or creditable. This lack of articulation between the work of the schools and colleges emphasizes the need of a fuller and more thorough course in elementary algebra than is furnished by the text-books now most commonly used. It is with the hope of supplying this new demand that an American edition of Charles Smith's *Elementary Algebra* is published; a work whose excellencies, as represented in former editions, have been recognized by able critics on both sides of the Atlantic. *Preface.*

The author and the reviser of this work need no introduction to the educational public, both having written some valuable mathematical works previously. The book before us is thoroughly Americanized and well adapted to connect, without sudden transition, the course of study in Algebra pursued in the High Schools and Academies with that in our best Colleges. B. F. F.

Elementary Lessons in Physics. By John B. Gifford, Superintendent of Schools, Peabody, Massachusetts. 8 vo. cloth, 169 pages. Price, $0.60 Boston & Chicago: Thompson, Brown & Co.

This little book is intended for the higher classes in Grammar Schools and for High Schools. The experiments are arranged in order of difficulty beginning with the most simple. The book tells the pupil nothing which he might better find out for himself. Numerous illustrations are given to show the conditions of the experiments and the apparatus required for them is simple and of a kind readily procured at small expense—mostly such as the ingenous pupil will take much interest in making for himself. The introduction of this work can not fail to produce excellent results.

B. F. F.

Annals of Mathematics. Edited by Ormond Stone: W. M. Thornton, R. S. Woodward, James McMahon, W. H. Echols, Associate Editors. Office of Publication: University of Virginia. $2.00 per year in advance.

The July number contains the following articles: Note on the Theory of Functions, by W. H. Echols; Homogenious Strains, by W. H. Metzler.

It also contains the solutions to ten problems.

The Mathematical Magazine: A Journal of Elementary and Higher Mathematics. Edited and published by Artemas Martin, A. M., Ph. D., LL. D. Large quarto. Issued quarterly. Price, $2.00 per year in advance.

Besides the valuable Papers and solutions, the October No., 1893, contains two pages of editorial items in which are biographies of Dr. Joel E. Henricks and Ruben Davis, Sr., and five pages of Notices of Books and Periodicals.